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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,074	04/19/2004	Tomoki Nobuta	WAKAB76.006AUS	1881

20995 7590 02/12/2007  
KNOBBE MARTENS OLSON & BEAR LLP  
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FOURTEENTH FLOOR  
IRVINE, CA 92614

EXAMINER
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THOMPSON, MELISSA

ART UNIT	PAPER NUMBER
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1745

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	02/12/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/12/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com  
eOAPilot@kmob.com

## Office Action Summary

Application No.

10/827,074

Applicant(s)

NOBUTA ET AL.

Examiner

Melissa B. Thompson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/19/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Information Disclosure Statement*

The IDS gives an improper document number. The second reference given shows that the first four numbers are "2000", however the correct numbers should be "2001".

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1,2,7-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Fleischer et al. (U.S. Patent Number 6,225,009 B1).

Fleischer et al. disclose an electrochemical cell comprising an anode and a cathode (column 2, lines 60-61). The anode includes an organic compound which is a source of proton during discharge and the cathode includes a compound which forms an electrochemical battery couple with the anode (column 2, lines 62-64 and column 10, lines 21-55). For example, Fleischer et al. disclose the organic compound in the anode can be quinone (column 3, line 3) and the anode active component is capable of providing hydrogen ions in an electrochemical reaction to produce electrical energy during discharge of the cell

and to accept hydrogen ions during charging of the cell (column 3, lines 8-12). Fleischer et al. disclose that organic materials are used as a hydrogen ion source in the solid state and the hydrogen ions of the redox reaction are transported in a non-liquid electrolyte (column 4, lines 65-67). Fleischer et al. disclose that both the anode and/or cathode include a proton conducting material which may be a solid gel, a polymer, or an aqueous solution such as sulfuric acid (column 5, lines 54-56). Fleischer et al. disclose an anion exchange material in the form of a sheet or resin, is mixed with the materials of the cathode or anode mix or alternatively is positioned between the anode and the cathode; and that exchange material is a natural or synthetic substance (column 12, lines 1-8). Hexahydroxy benzene can be used in the form of triquinoyl in the cathode with coupled with an appropriate anodic active material (column 13, lines 20-22). Fleischer et al. disclose a three cell bipolar battery (stacked cells) with graphite sheets between the cells acting as bipolar current collector (column 18 line 58 to column 19, line 3). Fleischer et al. disclose that the graphite sheets between the cells act as bipolar a current collector which shows that the batteries are stacked and connected in series. Each individual cell voltage is 0.55 volt and stacking 3 in series gives 1.7 volts (column 19, lines 1-6).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fleischer et al. (U.S. Patent Number 6,225,009 B1) in view of Yoshioka et al. (U.S. Patent Number 4,693,828).

The disclosure of Fleischer et al. as applied to claim 1 discussed above is incorporated herein.

Fleischer et al. do not teach that the anion-exchange resin is a fiber with length of 10mm and major axis of 100 $\mu$ m or less or that the fiber is made of polyvinyl alcohol.

Yoshioka et al. teach ion exchange resin fibers with the anion-exchanges groups such as a quaternary ammonium group and a primary, secondary, and tertiary amino groups (column 1, lines 65-67). Yoshioka et al. teach that known ion-exchange fibers used are usually 0.1 to 100 $\mu$ m and preferably 1 to 100 $\mu$ m in diameter (column 2, lines 4-5) and include polyvinyl alcohol-based fibers (column 2, line 10). In Example 1, Yoshioka et al. teach that the fibers are cut to a length of 1mm (column 4, line 55).

Fleischer and Yoshioka are analogous art because they are both concerned with a similar problem solving area of using anion-exchange materials to accomplish ion exchanging.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the polyvinyl-alcohol based anion-exchange resin fibers with quaternary ammonium groups disclosed in Yoshioka et al. in the electrode of

Fleischer et al. because the anion-exchange resin fibers used in Yoshioka et al. are readily commercially available (column 1, lines 56-57). Furthermore, the courts have held that it is prima facie obvious to select a known material based on its suitability for its intended purpose (see MPEP 2144.07)

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fleischer et al. (U.S. Patent Number 6,225,009 B1).

The disclosure of Fleischer et al. as applied to claim 1 discussed above is incorporated herein.

Fleischer et al. do not teach that the anion-exchange resin is 0.01 to 60wt% of the electrode active material.

It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the amount of anion-exchange resin. The number of ion in the electrode would dictate the amount of anion-exchange resin in the active material as taught by Fleischer (column 12, lines 1-14). Thus, Fleischer is clearly teaching that the concentration of the anion-exchange resin is a results effective variable. The courts have held that optimization of a results effective variable is not novel. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa B. Thompson whose telephone number is (571)

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272-2758. The examiner can normally be reached on Monday through Friday from 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Trainer, Susy Tsang-Foster can be reached on (571) 272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MBT

  
SUSY TSANG-FOSTER  
PRIMARY EXAMINER